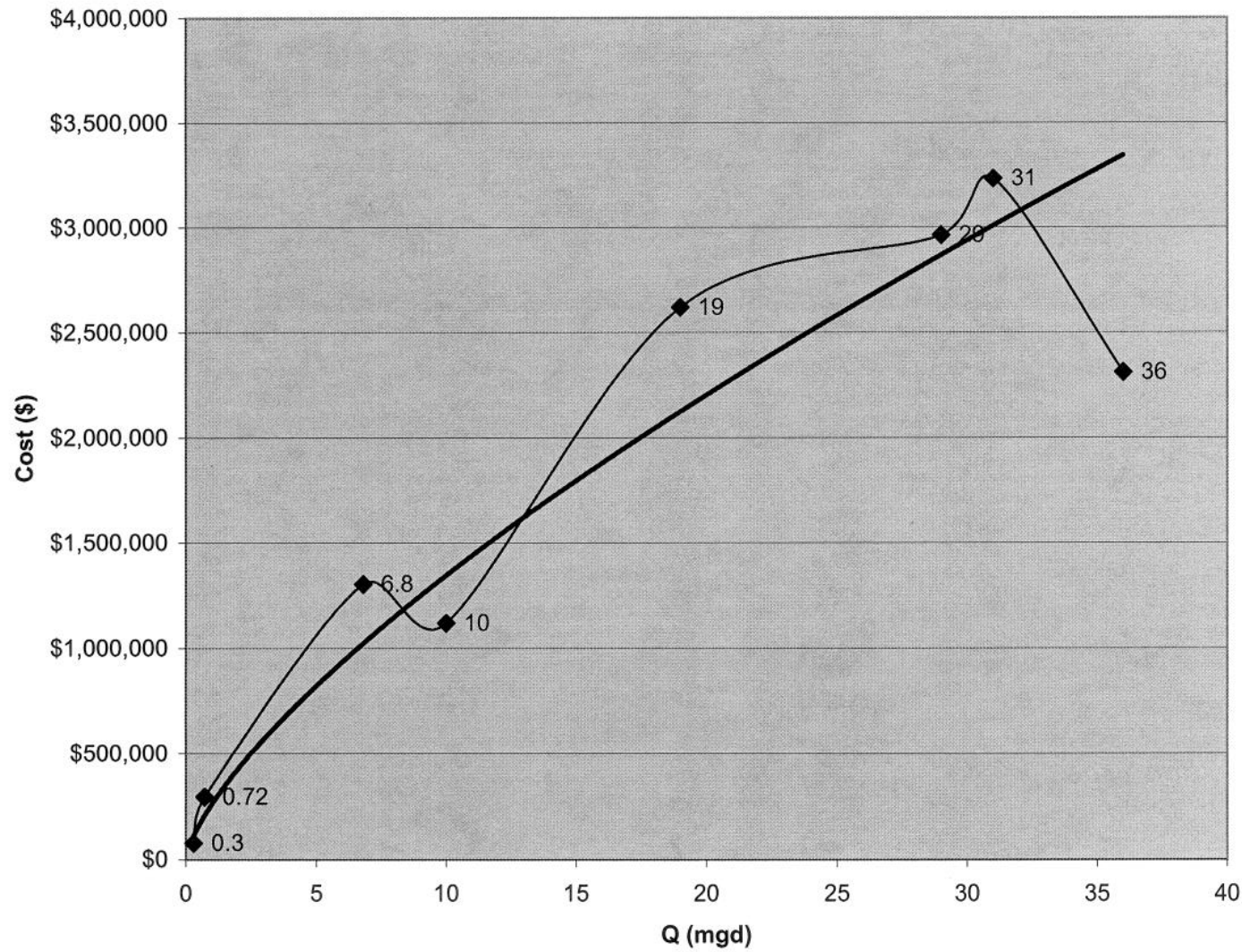


Appendix H: Pump Station Costs & Curves

Pump Stations All Mechanical



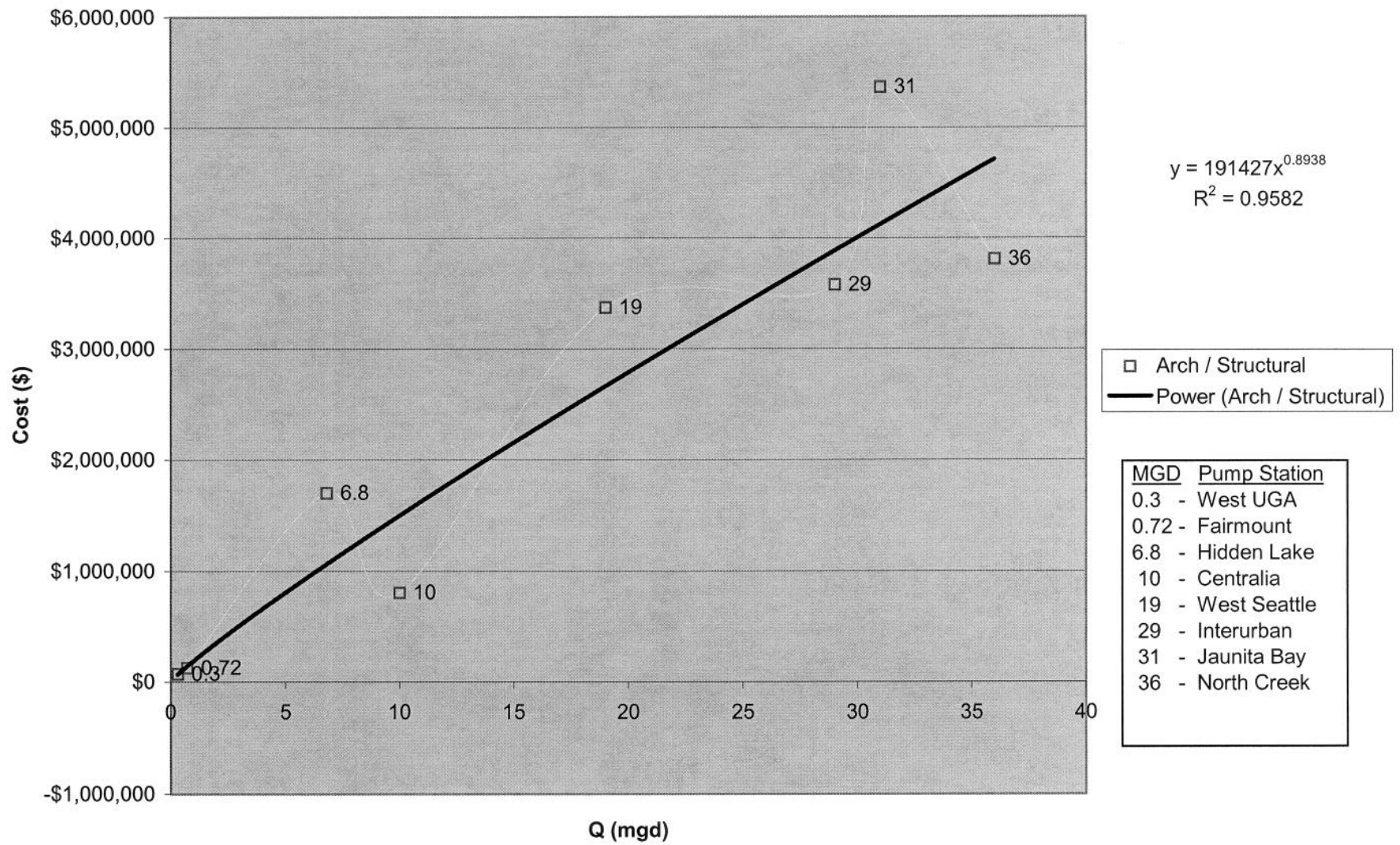
$$y = 261675x^{0.711}$$

$$R^2 = 0.9567$$

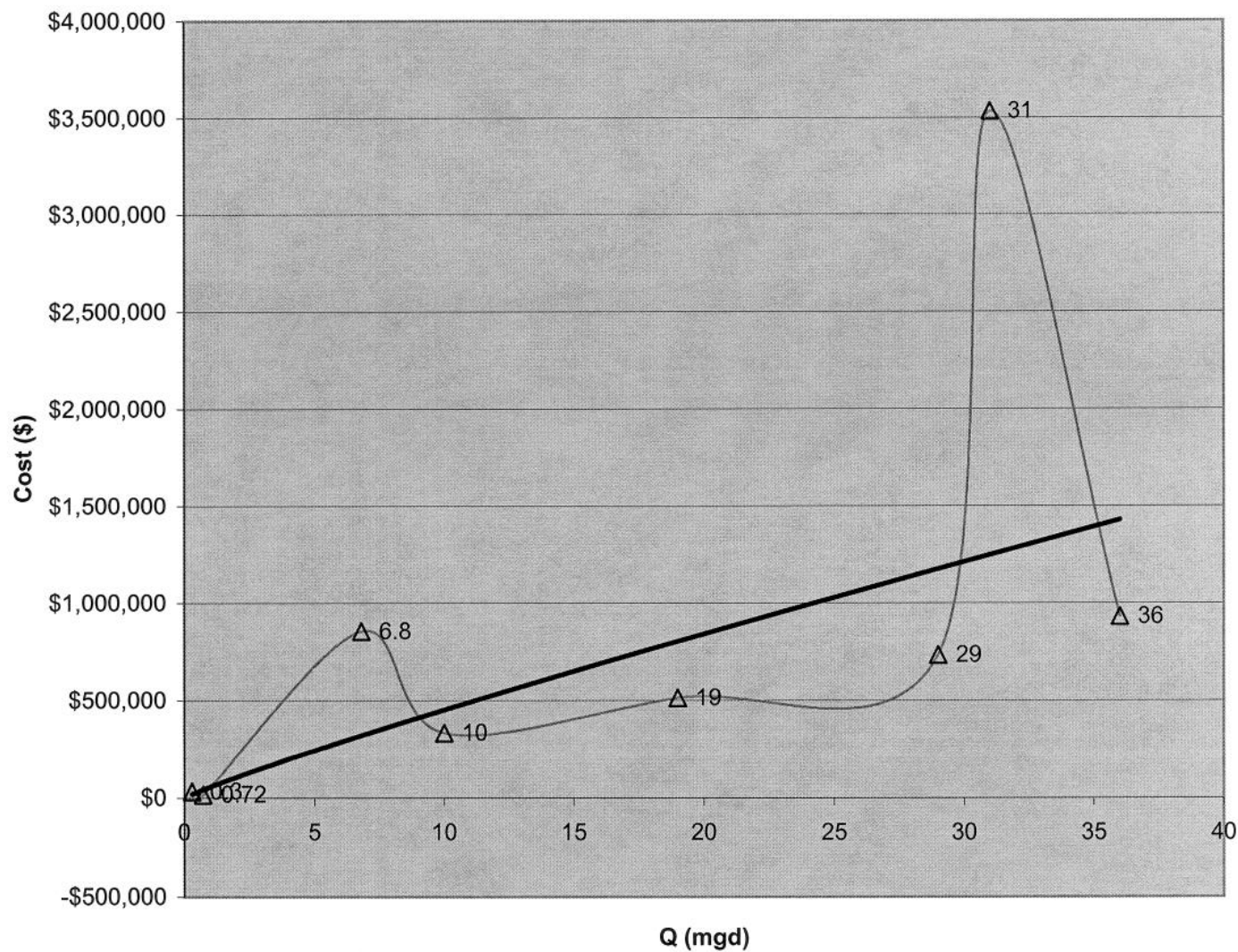
◆ All Mechanical
— Power (All Mechanical)

MGD	Pump Station
0.3	West UGA
0.72	Fairmount
6.8	Hidden Lake
10	Centralia
19	West Seattle
29	Interurban
31	Jaunita Bay
36	North Creek

Pump Stations Architectural/Structural

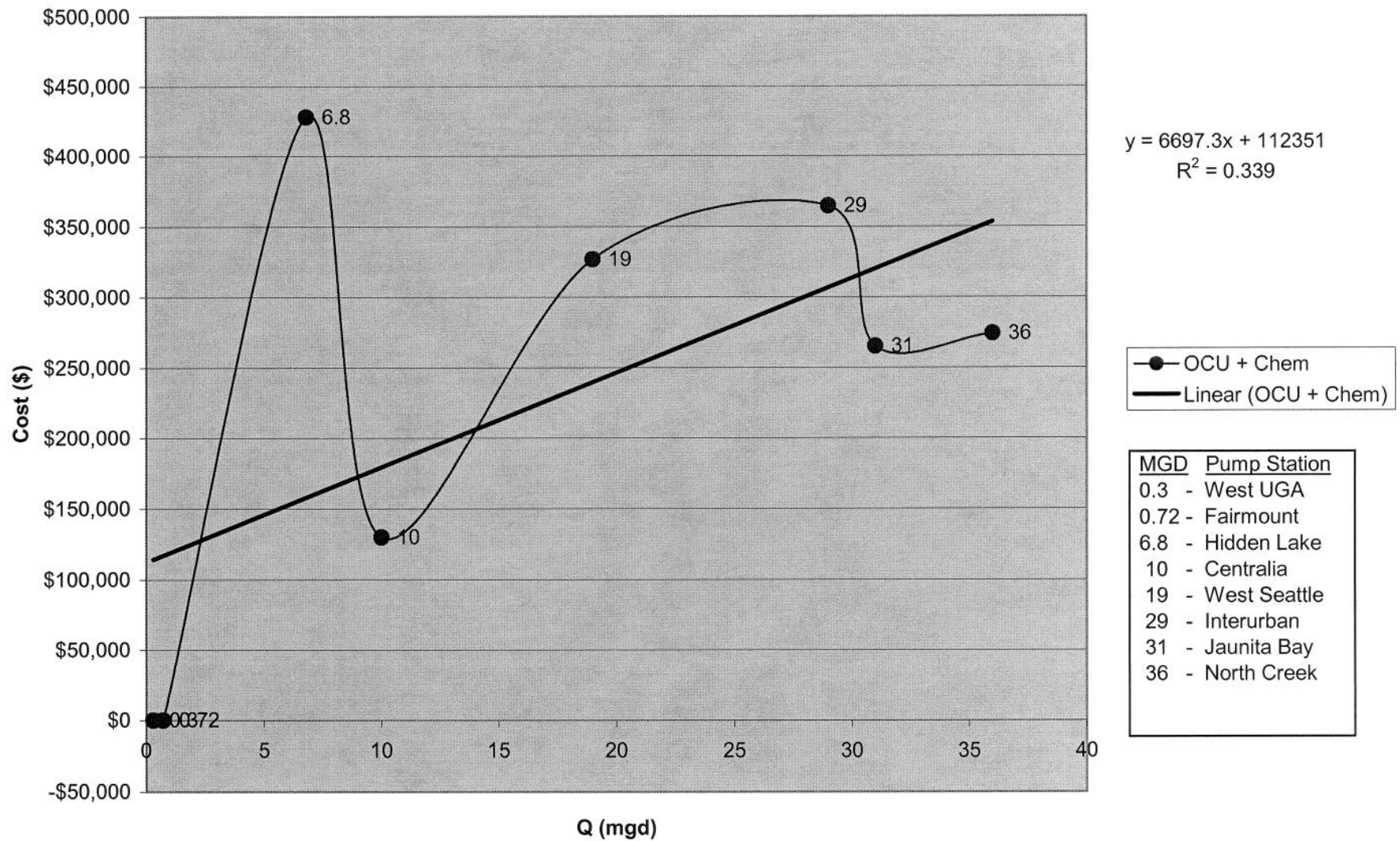


Pump Stations Site Work

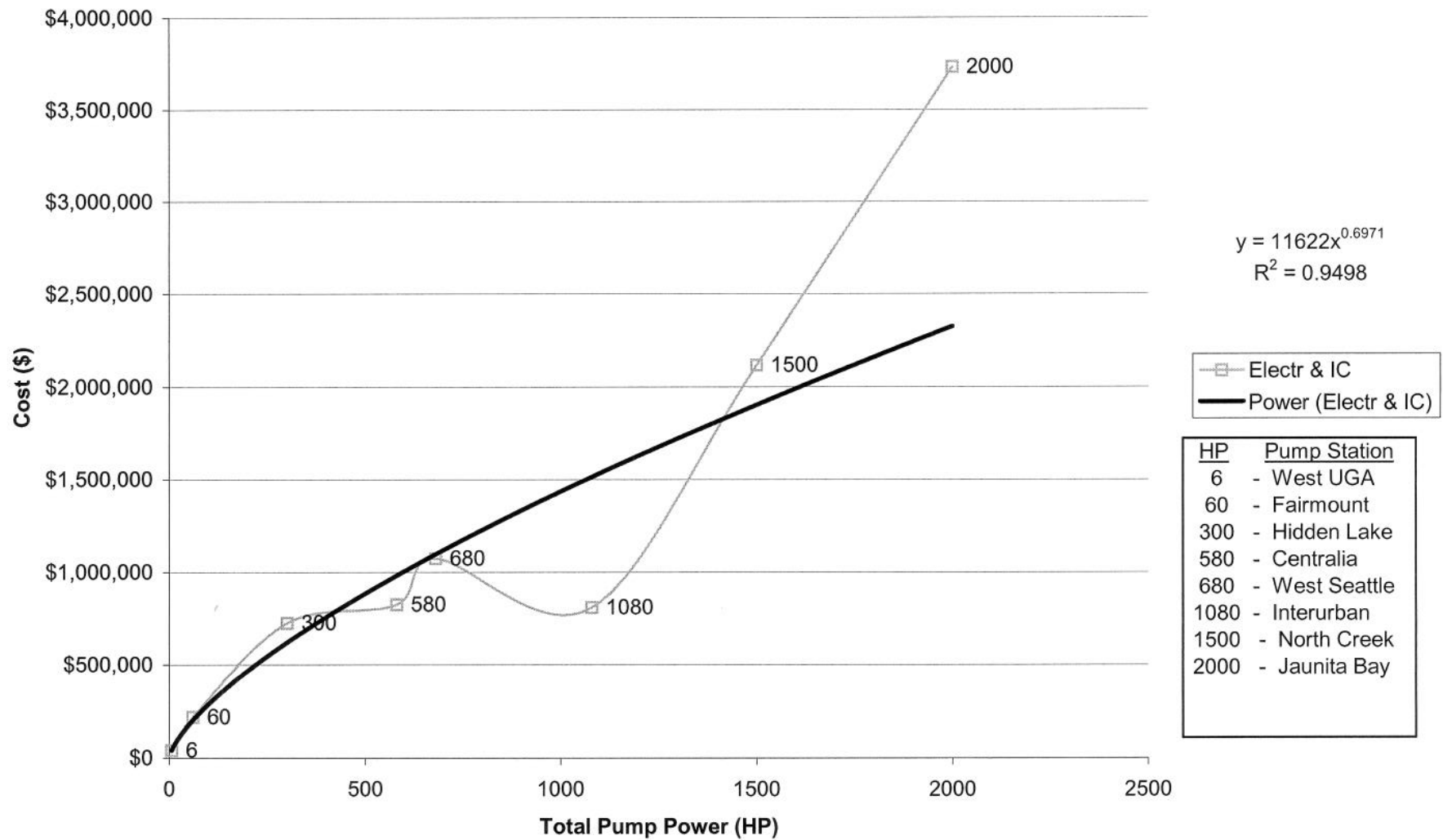


MGD	Pump Station
0.3	West UGA
0.72	Fairmount
6.8	Hidden Lake
10	Centralia
19	West Seattle
29	Interurban
31	Jaunita Bay
36	North Creek

Pump Stations **Odor Control Unit and Chemical Systems**



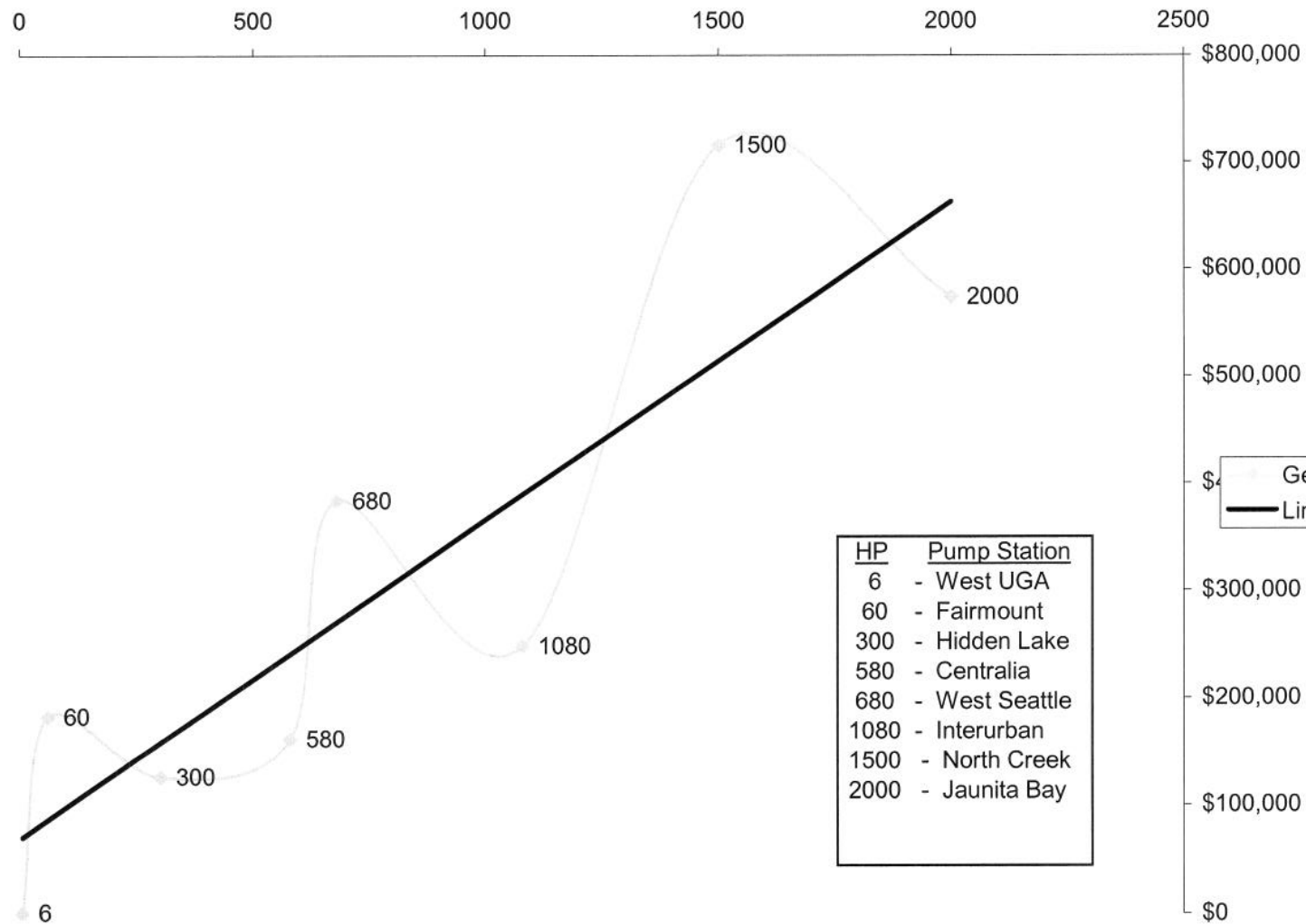
Pump Stations Electrical and I&C Costs



Pump Stations Generator System Costs

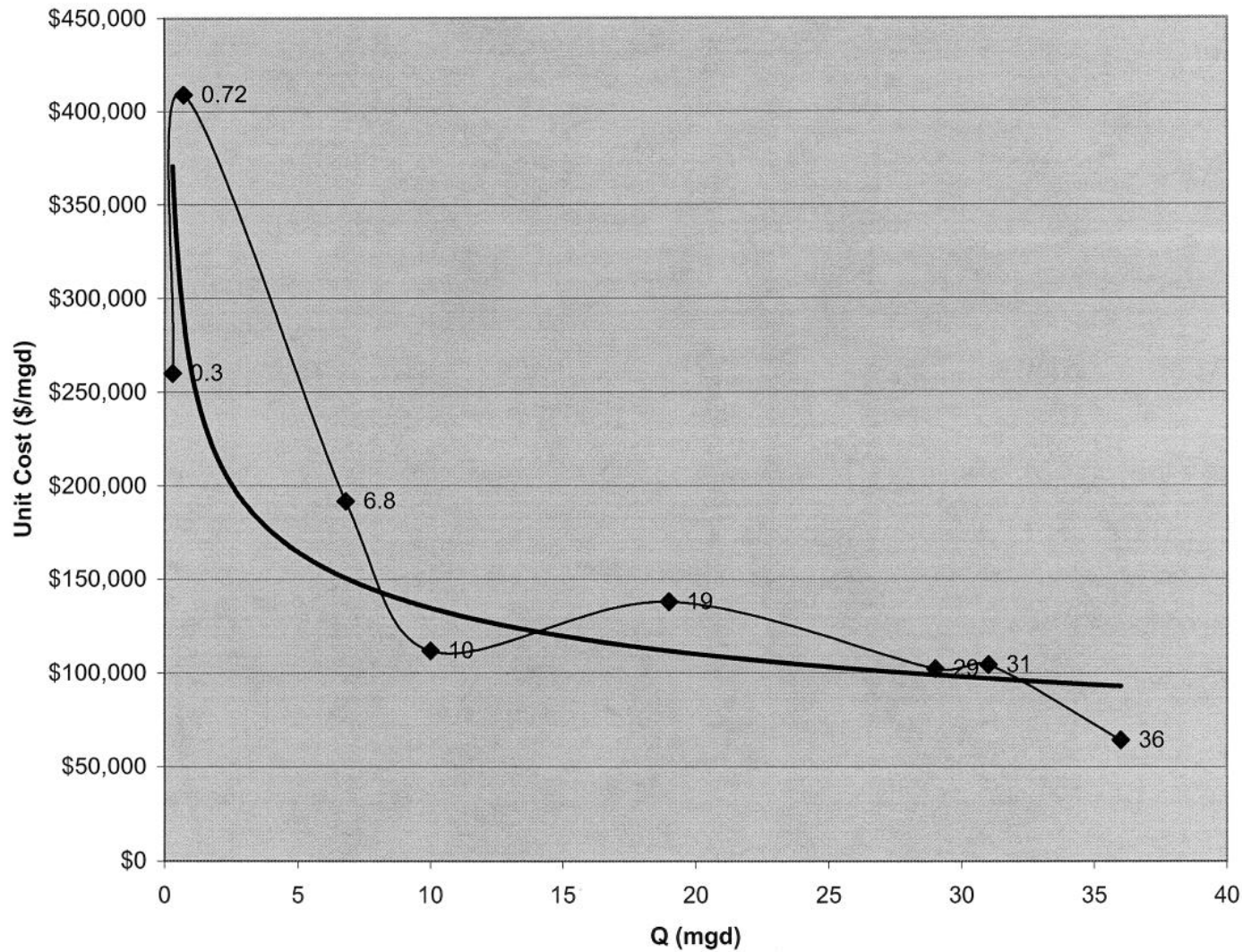
$$y = 297.33x + 67638$$

$$R^2 = 0.7508$$



HP	Pump Station
6	- West UGA
60	- Fairmount
300	- Hidden Lake
580	- Centralia
680	- West Seattle
1080	- Interurban
1500	- North Creek
2000	- Jaunita Bay

Pump Stations (Unit Costs) All Mechanical



MGD	Pump Station
0.3	West UGA
0.72	Fairmount
6.8	Hidden Lake
10	Centralia
19	West Seattle
29	Interurban
31	Jaunita Bay
36	North Creek

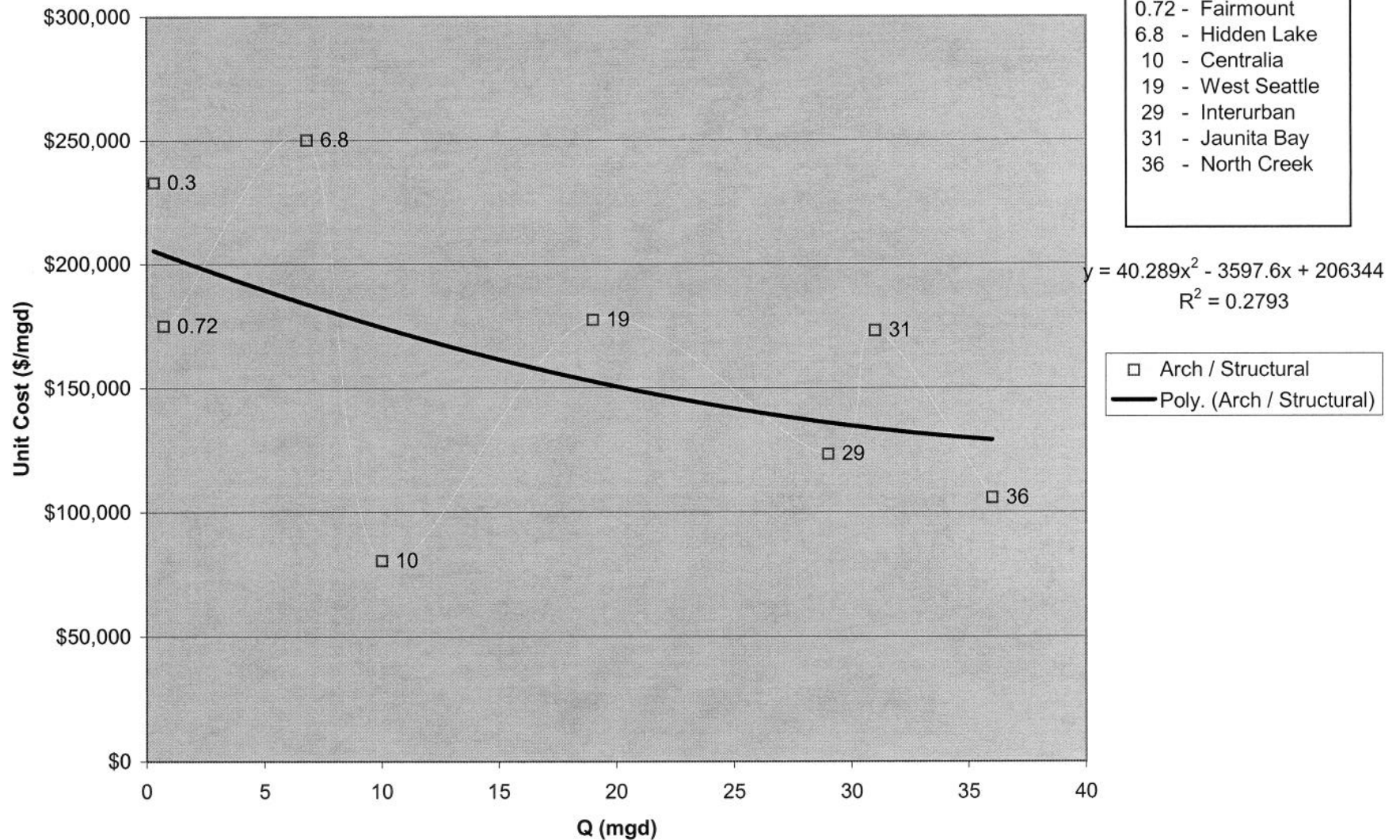
◆ All Mechanical
 — Power (All Mechanical)

$$y = 261675x^{-0.289}$$

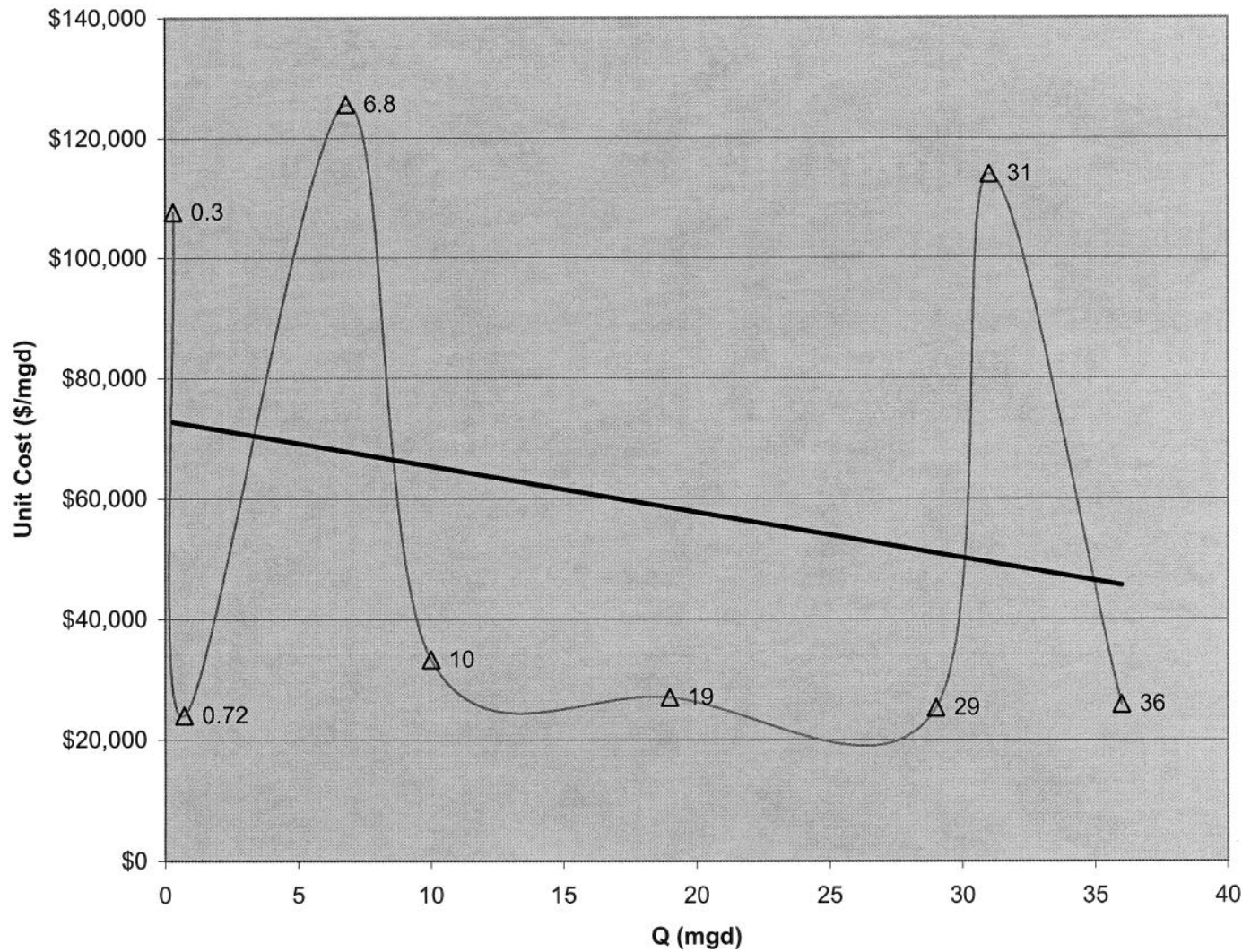
$$R^2 = 0.785$$

Pump Stations (Unit Costs) **Architectural/Structural**

MGD	Pump Station
0.3	West UGA
0.72	Fairmount
6.8	Hidden Lake
10	Centralia
19	West Seattle
29	Interurban
31	Jaunita Bay
36	North Creek



Pump Stations (Unit Costs) Site Work



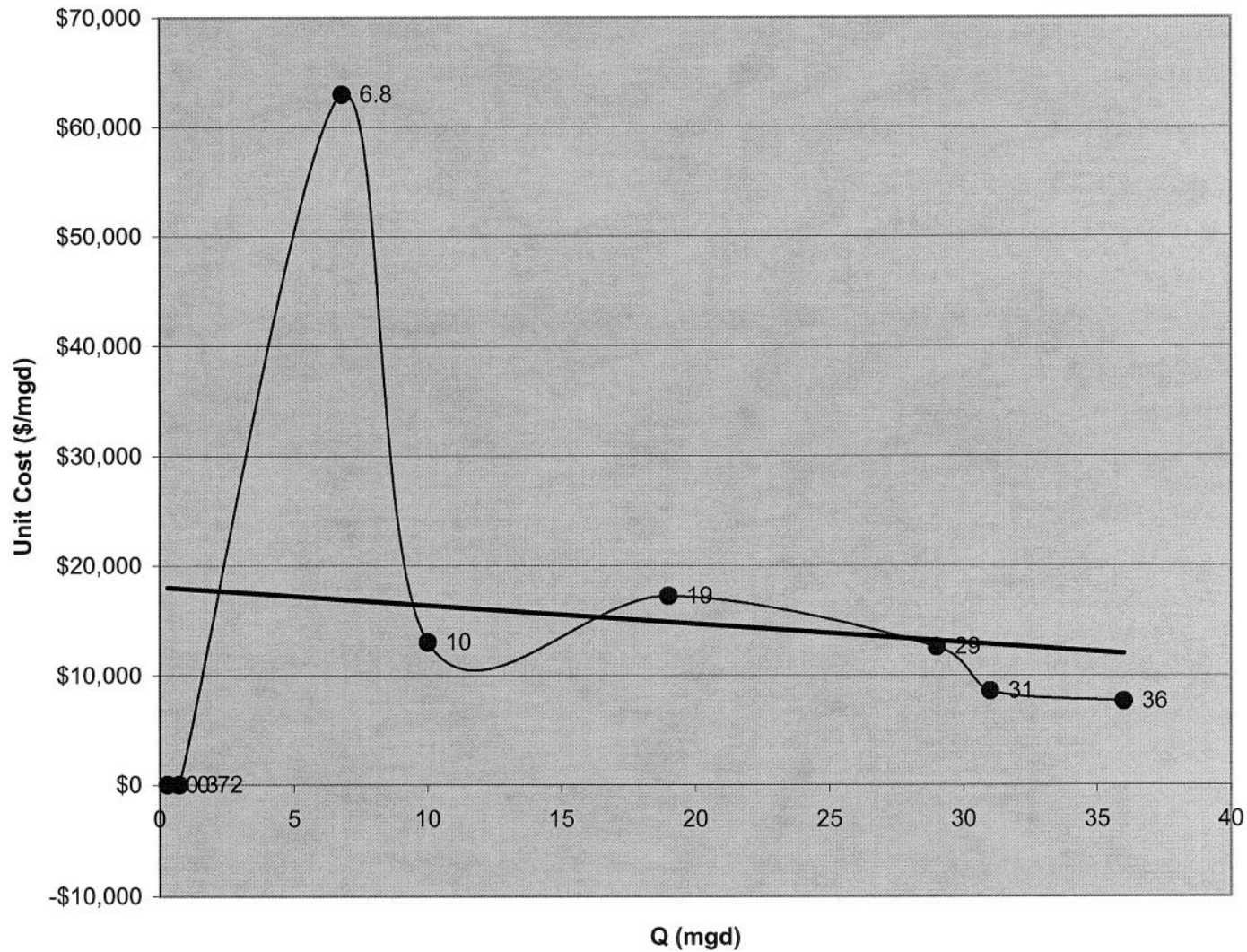
MGD	Pump Station
0.3	West UGA
0.72	Fairmount
6.8	Hidden Lake
10	Centralia
19	West Seattle
29	Interurban
31	Jaunita Bay
36	North Creek

△ Sitework
 — Linear (Sitework)

$$y = -760.37x + 72937$$

$$R^2 = 0.0542$$

Pump Stations (Unit Costs) **Odor Control + Chemical Systems**



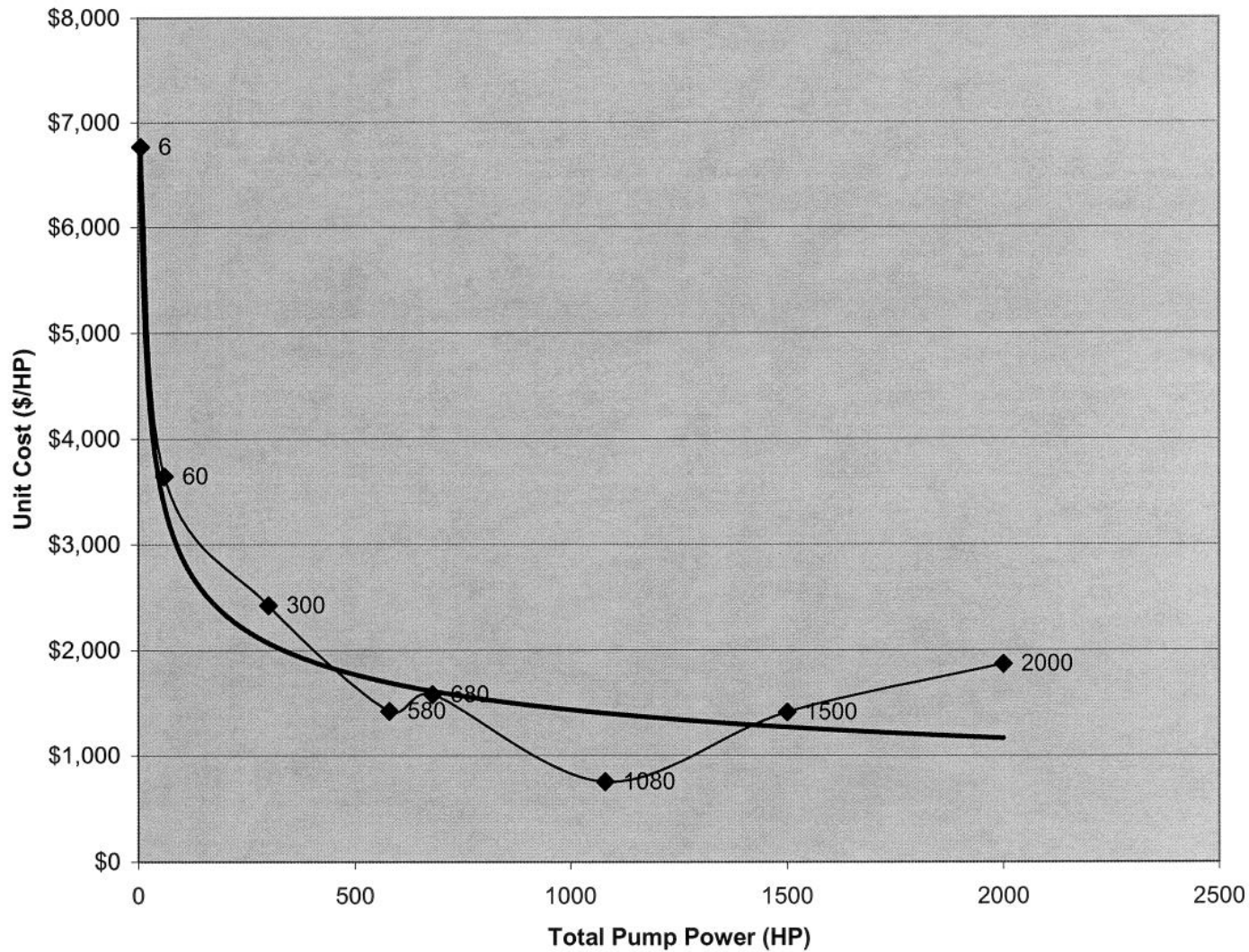
MGD	Pump Station
0.3	West UGA
0.72	Fairmount
6.8	Hidden Lake
10	Centralia
19	West Seattle
29	Interurban
31	Jaunita Bay
36	North Creek

● OCU + Chem
 — Linear (OCU + Chem)

$$y = -167.84x + 18021$$

$$R^2 = 0.0138$$

Pump Stations (Unit Costs) **Electrical and I&C**



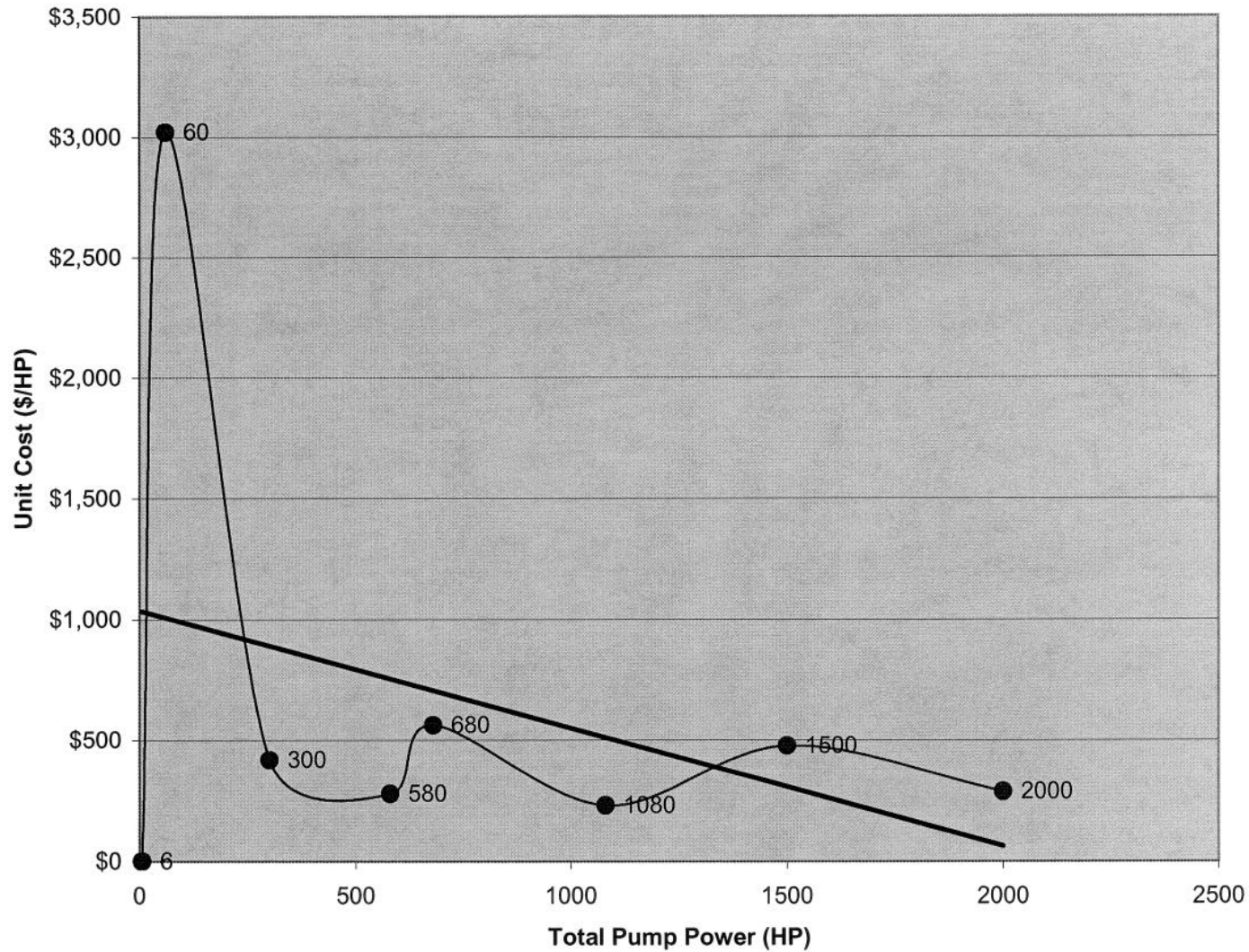
HP	Pump Station
6	- West UGA
60	- Fairmount
300	- Hidden Lake
580	- Centralia
680	- West Seattle
1080	- Interurban
1500	- North Creek
2000	- Jaunita Bay

◆ Electr & IC
 — Power (Electr & IC)

$$y = 11622x^{-0.3029}$$

$$R^2 = 0.7812$$

Pump Stations (Unit Costs) **Generator**



HP	Pump Station
6	West UGA
60	Fairmount
300	Hidden Lake
580	Centralia
680	West Seattle
1080	Interurban
1500	North Creek
2000	Jaunita Bay

● Generator
 — Linear (Generator)

$$y = -0.4868x + 1036.3$$

$$R^2 = 0.1259$$

Pump Station	ENR Adjust	Q Firm (mgd)	Total Pump HP	Exc Depth	Pumps	Pipes & Mech Misc	Generator	Electr & IC	Chemical Feed System	Odor Control	Arch / Structural	Sitework	Total	Notes
Existing Pump Station Data Points														
Henderson Upgrade		22	500	?	\$604,705	\$186,935	\$278,680	\$652,630		\$48,930		\$665,834	\$2,437,714	
Adj from '99 to 9/05	1.210				\$731,575	\$226,155	\$337,149	\$789,555		\$59,196		\$805,530	\$2,949,159	
West Seattle		19	680	?	\$1,264,676	\$584,369	\$270,143	\$757,318	\$45,472	\$185,161	\$2,380,882	\$362,085	\$5,850,106	
Adj from '95 to 9/05	1.416				\$1,791,126	\$827,626	\$382,596	\$1,072,569	\$64,401	\$262,238	\$3,371,978	\$512,811	\$8,285,346	
Sweyolocken		23	800	?	\$1,651,139		\$476,880	\$1,252,511						
Adj from '99 to 9/05	1.210				\$1,997,557		\$576,932	\$1,515,294						
Interurban		29	1080	?	\$1,304,020	\$580,425	\$157,506	\$515,218	\$70,185	\$161,709	\$2,275,784	\$466,149	\$5,530,996	
Adj from '92 to 9/05	1.572				\$2,049,977	\$912,454	\$247,606	\$809,945	\$110,334	\$254,214	\$3,577,633	\$732,807	\$8,694,970	
North Creek		36	1500	?	\$1,431,550	\$396,007	\$566,289	\$1,674,428	\$60,144	\$156,800	\$3,013,249	\$736,589	\$8,035,056	
Adj from '97 to 9/05	1.264				\$1,808,841	\$500,376	\$715,537	\$2,115,731	\$75,995	\$198,125	\$3,807,403	\$930,720	\$10,152,729	
New Pump Station Data Points														
Centralia		10	580	37	\$447,587	\$560,558	\$144,608	\$743,268		\$117,082	\$726,531	\$299,868	\$3,039,503	Roll in 2% Contingency, add 6.5% to match low bidder, add 4% to adjust to Seattle location factor (RS Means), Removed Solider Pile Walls from Sitework
Adj from '02 to 9/05	1.109				\$496,596	\$621,936	\$160,442	\$824,652		\$129,902	\$806,082	\$332,702	\$3,372,313	
Everett PS Modifications		32	1200	0	\$371,874	\$233,505		\$515,847			\$279,536	\$427,804		PS built on existing wet well so sitework and structural don't apply, add 4% to adjust to Seattle location factor (RS Means)
Adj from '03 to 9/05	1.092				\$406,253	\$255,092		\$563,536						
Juanita Bay		31	2000	60	\$1,439,411	\$1,717,605	\$560,540	\$3,644,576	\$66,434	\$192,383	\$5,241,022	\$3,450,572	\$16,312,543	Secant Wall shoring (\$2.9M) is included in sitework
Adj from 5/05 to 9/05	1.024				\$1,473,842	\$1,758,690	\$573,948	\$3,731,754	\$68,023	\$196,985	\$5,366,387	\$3,533,109	\$16,702,738	
Hidden Lake		6.8	300	17	\$955,581	\$346,731	\$125,000	\$725,734	\$115,497	\$312,629	\$1,700,663	\$854,011	\$5,135,846	Includes the demo of existing PS, small site with limited work area. PS built on sloping lot with the back of structure "daylighting". Low bidder dropped out cost based on 2nd bidder. KC cancelled contract to repackage and rebid.
Adj from 8/05 to 9/05	1.000				\$955,581	\$346,731	\$125,000	\$725,734	\$115,497	\$312,629	\$1,700,663	\$854,011	\$5,135,846	
Fairmount (Port Angeles)		0.72	60	0	\$100,403	\$187,666	\$177,260	\$213,780			\$123,250	\$16,907	\$819,266	Sitework partially done in previous contract. Add 4% to adjust to Seattle location factor (RS Means)
Adj from 6/05 to 9/05	1.022				\$102,629	\$191,827	\$181,190	\$218,521			\$125,983	\$17,282	\$837,432	

										Small Sewage PS in 96" MH with precast vault. Uses portable Gen Set in power outage. Add 4% to adjust to Seattle location factor (RS Means)	
West UGA Sewer (Port Angeles)		0.3	6	20	\$33,387	\$42,957	\$39,727	\$68,324	\$31,567	\$215,962	
Adj from 6/05 to 9/05	1.022				\$34,127	\$43,910	\$40,608	\$69,839	\$32,267	\$220,751	

Pump Station		Escalation 1.176	mgd	TDH	Depth
Richmond Beach	\$8,711,000	\$10,240,338	10	370	18
Medina	\$2,445,000	\$2,874,254	7.2	180	25
North Mercer	\$4,137,000	\$4,863,308	6	140	46
West Seattle	\$7,118,000	\$8,367,664	19	136	49
North Creek	\$9,848,000	\$11,576,954	36	160	34
Interurban	\$7,099,000	\$8,345,329	29	107	39
Centralia		\$3,372,313	10	160	35
Juanita Bay		\$16,702,738	30.6	278	60
Hidden Lake		\$5,135,846	6.8	154	17
West UGA Sewer		\$220,751	0.3	30	20

Site/Civil Costs**Current Tabula Formula**

Site/Civil (\$)=\$20,000 x mgd + \$85,000

Escalated Current Formula

Site/Civil (\$)=\$23,500 x mgd + \$100,000

New Curve Data Formula

Site/Civil (\$)=\$57,000 x mgd^{0.90}

Cost Comparison

mgd	Current	Escalated	New
1			\$56,803
5	\$185,000	\$220,000	\$241,599
10	\$285,000	\$340,000	\$450,683
15	\$385,000	\$460,000	\$649,031
20	\$485,000	\$580,000	\$840,713
25	\$585,000	\$700,000	\$1,027,586
30	\$685,000	\$820,000	\$1,210,715
35	\$785,000	\$940,000	\$1,390,787
40	\$885,000	\$1,060,000	\$1,568,282

Pump Stations used to check against

West UGA	0.3	\$91,000	\$107,200	\$19,288
North Mercer	6	\$205,000	\$244,000	\$285,898
Hidden Lake	6.8	\$221,000	\$263,200	\$319,987
Medina	7.2	\$229,000	\$272,800	\$336,879
Richmond Beach	10	\$285,000	\$340,000	\$452,767
Centralia	10	\$285,000	\$340,000	\$452,767
West Seattle	19	\$465,000	\$556,000	\$806,776
Interurban	29	\$665,000	\$796,000	\$1,180,410
Juanita Bay	31	\$697,000	\$834,400	\$1,238,865
North Creek	36	\$805,000	\$964,000	\$1,433,993

Electrical/I&C Costs**Current Tabula Formula**

Elect/I&C (\$)=\$1,500 x HP + \$314,000

Escalated Current Formula

Elect/I&C (\$)=\$1,750 x HP + \$370,000

New Curve Data FormulaElect/I&C (\$)=\$12,000 X HP^{0.70}**Cost Comparison**

HP	Current	Escalated	New
200			\$489,669
300	\$764,000	\$895,000	\$650,378
500	\$1,064,000	\$1,245,000	\$929,951
750	\$1,439,000	\$1,682,500	\$1,235,163
1000	\$1,814,000	\$2,120,000	\$1,510,710
1250	\$2,189,000	\$2,557,500	\$1,766,112
1500	\$2,564,000	\$2,995,000	\$2,006,528
1750	\$2,939,000	\$3,432,500	\$2,235,156
2000	\$3,314,000	\$3,870,000	\$2,454,156

Pump Stations used to check against

West UGA	6	\$323,000	\$380,500	\$42,062
North Mercer	289	\$747,500	\$875,750	\$633,592
Hidden Lake	300	\$764,000	\$895,000	\$650,378
Medina	446	\$983,000	\$1,150,500	\$858,451
Centralia	580	\$1,184,000	\$1,385,000	\$1,031,765
West Seattle	680	\$1,334,000	\$1,560,000	\$1,153,287
Interurban	1080	\$1,934,000	\$2,260,000	\$1,594,329
Richmond Beach	1273	\$2,223,500	\$2,597,750	\$1,788,797
North Creek	1500	\$2,564,000	\$2,995,000	\$2,006,528
Juanita Bay	2000	\$3,314,000	\$3,870,000	\$2,454,156

Architectural/Structural Costs**Current Tabula Formula**

$$\text{Arch/Struct } (\$/\text{mgd}) = \$0.42 \times \text{mgd}^{-0.47} \times 10^6$$

Escalated Current Formula

$$\text{Arch/Struct } (\$/\text{mgd}) = \$0.49 \times \text{mgd}^{-0.47} \times 10^6$$

New Curve Data Formula

$$\text{Arch/Struct } (\$/\text{mgd}) = \$40.29 \times \text{mgd}^2 - \$3,597 \times \text{mgd} + \$206,344$$

Architectural/Structural Adjustment**Current Tabula Formula**

$$\text{Arch/Struct Adj } (\$/\text{mgd}) = \$0.20 \times ((\text{Excavation} - 30) / 30 + 0.01 \times (\text{TDH} - 120) / 120) \times 10^6$$

Escalated Current Formula

$$\text{Arch/Struct Adj } (\$/\text{mgd}) = \$0.24 \times ((\text{Excavation} - 30) / 30 + 0.01 \times (\text{TDH} - 120) / 120) \times 10^6$$

New Curve Data Formula**Cost Comparison**

mgd	Current	Escalated	New
1			\$202,787
5	\$197,121	\$229,975	\$189,366
10	\$142,315	\$166,034	\$174,403
15	\$117,621	\$137,225	\$161,454
20	\$102,746	\$119,870	\$150,520
25	\$92,516	\$107,935	\$141,600
30	\$84,918	\$99,072	\$134,695
35	\$78,984	\$92,148	\$129,804
40	\$74,179	\$86,542	\$126,928

Cost Comparison

Depth	TDH	Current	Escalated	New
31	30	\$5,167	\$6,200	
46	140	\$107,000	\$128,400	
28	154	-\$12,767	-\$15,320	
25	180	-\$32,333	-\$38,800	
18	370	-\$75,833	-\$91,000	
37	160	\$47,333	\$56,800	
49	136	\$126,933	\$152,320	
39	107	\$59,783	\$71,740	
60	278	\$202,633	\$243,160	
34	160	\$27,333	\$32,800	

Pump Stations used to check against

West UGA	0.3	\$739,609	\$862,877	\$205,269
North Mercer	6	\$180,933	\$211,089	\$186,212
Hidden Lake	6.8	\$170,596	\$199,029	\$183,747
Medina	7.2	\$166,075	\$193,754	\$182,534
Richmond Beach	10	\$142,315	\$166,034	\$174,403
Centralia	10	\$142,315	\$166,034	\$174,403
West Seattle	19	\$105,253	\$122,795	\$152,546
Interurban	29	\$86,282	\$100,663	\$135,915
Juanita Bay	31	\$84,132	\$98,154	\$134,002
North Creek	36	\$77,945	\$90,936	\$129,068

Base Mechanical Costs

Current Tabula Formula

$$\text{Base Mech (\$/mgd)} = \$0.33 \times \text{mgd}^{0.43} \times 10^6$$

Escalated Current Formula

$$\text{Base Mech (\$/mgd)} = \$0.39 \times \text{mgd}^{0.43} \times 10^6$$

New Curve Data Formula

$$\text{Base Mech (\$/mgd)} = \$261,700 \times \text{mgd}^{0.289}$$

Cost Comparison

mgd	Current	Escalated	New
1			\$261,935
5	\$197,121	\$229,975	\$225,720
10	\$142,315	\$166,034	\$187,409
15	\$117,621	\$137,225	\$155,601
20	\$102,746	\$119,870	\$129,191
25	\$92,516	\$107,935	\$107,264
30	\$84,918	\$99,072	\$89,059
35	\$78,984	\$92,148	\$73,943
40	\$74,179	\$86,542	\$61,393

Pump Stations used to check against

West UGA	0.3	\$739,609	\$862,877	\$370,609
North Mercer	6	\$180,933	\$211,089	\$155,926
Hidden Lake	6.8	\$170,596	\$199,029	\$150,386
Medina	7.2	\$166,075	\$193,754	\$147,923
Richmond Beach	10	\$142,315	\$166,034	\$134,525
Centralia	10	\$142,315	\$166,034	\$134,525
West Seattle	19	\$105,253	\$122,795	\$111,749
Interurban	29	\$86,282	\$100,663	\$98,894
Juanita Bay	31	\$84,132	\$98,154	\$97,371
North Creek	36	\$77,945	\$90,936	\$92,904

Mechanical Adjustment

Current Tabula Formula

$$\text{Mech Adj (\$/mgd)} = \$0.05 \times ((\text{TDH} - 120) / 120) \times 10^6$$

For TDH over 300 use 1.2 x Base Mech Cost

Escalated Current Formula

$$\text{Mech Adj (\$/mgd)} = \$0.06 \times ((\text{TDH} - 120) / 120) \times 10^6$$

New Curve Data Formula

Cost Comparison

TDH	Current	Escalated	New
30	-\$37,500	-\$45,000	
140	\$8,333	\$10,000	
154	\$14,167	\$17,000	
180	\$25,000	\$30,000	
370	\$170,777	\$199,240	Over 300 TDH
160	\$16,667	\$20,000	
136	\$6,667	\$8,000	
107	-\$5,417	-\$6,500	
278	\$65,833	\$79,000	
160	\$16,667	\$20,000	

Pump Station Curve Costs vs Actual Costs

Pump Station Verification Costs

Pump Station	mgd	Year of Construction	Escalation to 9/05 using Seattle ENR Index	Actual Construction Cost ²	Construction Cost Escalated to 9/05 Dollars	Current Tabula Formula (12/99 Dollars)	Cost Using Escalated Tabula Costs Formula (9/05 dollars)	% Difference	Construction Cost Using New Formula (9/05 dollars)	% Difference
West UGA	0.3	Jun-05	1.022	\$215,962	\$220,750	\$848,066	\$993,786	350%	\$222,473	1%
North Mercer ¹	6	Dec-99	1.176	\$4,137,000	\$4,863,308	\$3,815,698	\$4,483,214	-8%	\$3,802,719	-22%
Hidden Lake	6.8	Aug-05	1.000	\$5,136,000	\$5,136,000	\$3,314,632	\$3,893,784	-24%	\$3,271,263	-36%
Medina ¹	7.2	Dec-99	1.176	\$2,445,000	\$2,874,254	\$3,550,673	\$4,149,992	44%	\$3,511,260	22%
Richmond Beach ¹	10	Dec-99	1.176	\$8,711,000	\$10,240,338	\$5,638,124	\$6,598,423	-36%	\$5,670,847	-45%
Centralia	10	Jun-02	1.109	\$3,039,503	\$3,372,313	\$4,955,291	\$5,813,673	72%	\$5,341,814	58%
West Seattle	19	Jun-95	1.416	\$7,118,000	\$8,367,664	\$8,337,020	\$9,828,303	17%	\$10,027,744	20%
Interurban	29	Sep-91	1.572	\$7,099,000	\$8,345,329	\$9,180,013	\$10,786,403	29%	\$11,476,162	38%
Juanita Bay	30.6	May-05	1.024	\$16,312,543	\$16,702,738	\$17,374,947	\$20,569,507	23%	\$20,631,128	24%
North Creek	36	Jun-97	1.264	\$9,848,000	\$11,576,954	\$10,565,025	\$12,407,163	7%	\$13,332,291	15%

Note 1: These pump stations were previously escalated to December 1999 dollars by HDR for use in checking the original pump station curve costs and are included for continuity purposes.

Note 2: All costs shown are construction costs and don't include engineering, legal, admin or allied costs.

Pump Station Curve Costs vs Actual Costs

Project Name: West UGA Sewer Pump Station

Firm Capacity (mgd): 0.3
 TDH (ft): 30
 Ground Surface Elevation (ft):
 Influent Pipe Invert (ft):
 Pump Power (HP): 6
 Excavation Depth (ft): 31

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$323,000	\$380,500	\$42,062
Site/Civil:	\$91,000	\$107,200	\$19,288
Arch/Struct:	\$221,883	\$258,863	\$61,581
Arch/Struct Adj:	\$1,550	\$1,860	\$1,860
Mechanical:	\$221,883	\$258,863	\$111,183
Mech Adj:	-\$11,250	-\$13,500	-\$13,500
	\$848,066	\$993,786	\$222,473

Actual Cost (Dec 1999 Dollars)

Actual Cost (Escalated 2005 Dollars) \$220,750

Project Name: North Mercer

Firm Capacity (mgd): 6
 TDH (ft): 140
 Ground Surface Elevation (ft): 135
 Influent Pipe Invert (ft): 100
 Pump Power (HP): 289
 Excavation Depth (ft): 46

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$747,500	\$875,750	\$633,592
Site/Civil:	\$205,000	\$244,000	\$285,898
Arch/Struct:	\$1,085,599	\$1,266,532	\$1,117,275
Arch/Struct Adj:	\$642,000	\$770,400	\$770,400
Mechanical:	\$1,085,599	\$1,266,532	\$935,555
Mech Adj:	\$50,000	\$60,000	\$60,000
	\$3,815,698	\$4,483,214	\$3,802,719

Actual Cost (Dec 1999 Dollars)

Actual Cost (Escalated 2005 Dollars) \$4,137,000

Pump Station Curve Costs vs Actual Costs

Project Name: Hidden Lake

Firm Capacity (mgd): 6.8
 TDH (ft): 120
 Ground Surface Elevation (ft):
 Influent Pipe Invert (ft):
 Pump Power (HP) 300
 Excavation Depth (ft): 28

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$764,000	\$895,000	\$650,378
Site/Civil:	\$221,000	\$263,200	\$319,987
Arch/Struct:	\$1,160,056	\$1,353,399	\$1,249,482
Arch/Struct Adj:	-\$86,813	-\$86,813	-\$86,813
Mechanical:	\$1,160,056	\$1,353,399	\$1,022,628
Mech Adj:	\$96,333	\$115,600	\$115,600
	\$3,314,632	\$3,893,784	\$3,271,263

Actual Cost (Dec 1999 Dollars)

Actual Cost (Escalated 2005 Dollars) \$5,136,000

Project Name: Medina

Firm Capacity (mgd): 7.2
 TDH (ft): 180
 Ground Surface Elevation (ft): 151
 Influent Pipe Invert (ft): 137
 Pump Power (HP) 446
 Excavation Depth (ft): 25

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$983,000	\$1,150,500	\$858,451
Site/Civil:	\$229,000	\$272,800	\$336,879
Arch/Struct:	\$1,195,737	\$1,395,026	\$1,314,246
Arch/Struct Adj:	-\$232,800	-\$279,360	-\$279,360
Mechanical:	\$1,195,737	\$1,395,026	\$1,065,043
Mech Adj:	\$180,000	\$216,000	\$216,000
	\$3,550,673	\$4,149,992	\$3,511,260

Actual Cost (Dec 1999 Dollars)

Actual Cost (Escalated 2005 Dollars) \$2,445,000

Pump Station Curve Costs vs Actual Costs

Project Name: Richmond Beach

Firm Capacity (mgd): 10
 TDH (ft): 370
 Ground Surface Elevation (ft): 123
 Influent Pipe Invert (ft): 116
 Pump Power (HP): 1273
 Excavation Depth (ft): 18

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$2,223,500	\$2,597,750	\$1,788,797
Site/Civil:	\$285,000	\$340,000	\$452,767
Arch/Struct:	\$1,423,145	\$1,660,336	\$1,744,030
Arch/Struct Adj:	-\$758,333	-\$910,000	-\$910,000
Mechanical:	\$1,423,145	\$1,660,336	\$1,345,252
Mech Adj:	\$1,041,667	\$1,250,000	\$1,250,000
	\$5,638,124	\$6,598,423	\$5,670,847

Actual Cost (Dec 1999 Dollars) \$8,711,000
 Actual Cost (Escalated 2005 Dollars) \$10,240,338

Project Name: Centralia

Firm Capacity (mgd): 10
 TDH (ft): 160
 Ground Surface Elevation (ft):
 Influent Pipe Invert (ft):
 Pump Power (HP): 580
 Excavation Depth (ft): 37

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$1,184,000	\$1,385,000	\$1,031,765
Site/Civil:	\$285,000	\$340,000	\$452,767
Arch/Struct:	\$1,423,145	\$1,660,336	\$1,744,030
Arch/Struct Adj:	\$473,333	\$568,000	\$568,000
Mechanical:	\$1,423,145	\$1,660,336	\$1,345,252
Mech Adj:	\$166,667	\$200,000	\$200,000
	\$4,955,291	\$5,813,673	\$5,341,814

Actual Cost (Dec 1999 Dollars)
 Actual Cost (Escalated 2005 Dollars) \$3,372,313

Pump Station Curve Costs vs Actual Costs

Project Name: West Seattle

Firm Capacity (mgd): 19
 TDH (ft): 136
 Ground Surface Elevation (ft): 122
 Influent Pipe Invert (ft): 84
 Pump Power (HP): 680
 Excavation Depth (ft): 49

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$1,334,000	\$1,560,000	\$1,153,287
Site/Civil:	\$465,000	\$556,000	\$806,776
Arch/Struct:	\$1,999,810	\$2,333,111	\$2,898,368
Arch/Struct Adj:	\$2,411,733	\$2,894,080	\$2,894,080
Mechanical:	\$1,999,810	\$2,333,111	\$2,123,232
Mech Adj:	\$126,667	\$152,000	\$152,000
	\$8,337,020	\$9,828,303	\$10,027,744

Actual Cost (Dec 1999 Dollars) \$7,118,000
 Actual Cost (Escalated 2005 Dollars) \$8,367,664

Project Name: Interurban

Firm Capacity (mgd): 29
 TDH (ft): 107
 Ground Surface Elevation (ft): 117
 Influent Pipe Invert (ft): 89
 Pump Power (HP): 1080
 Excavation Depth (ft): 39

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$1,934,000	\$2,260,000	\$1,594,329
Site/Civil:	\$665,000	\$796,000	\$1,180,410
Arch/Struct:	\$2,502,190	\$2,919,221	\$3,941,532
Arch/Struct Adj:	\$1,733,717	\$2,080,460	\$2,080,460
Mechanical:	\$2,502,190	\$2,919,221	\$2,867,931
Mech Adj:	-\$157,083	-\$188,500	-\$188,500
	\$9,180,013	\$10,786,403	\$11,476,162

Actual Cost (Dec 1999 Dollars) \$7,099,000
 Actual Cost (Escalated 2005 Dollars) \$8,345,329

Pump Station Curve Costs vs Actual Costs

Project Name: Juanita Bay

Firm Capacity (mgd): 30.6
 TDH (ft): 278
 Ground Surface Elevation (ft):
 Influent Pipe Invert (ft):
 Pump Power (HP) 2000
 Excavation Depth (ft): 60

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$697,000	\$834,400	\$1,238,865
Site/Civil:	\$3,314,000	\$3,870,000	\$2,454,156
Arch/Struct:	\$2,574,433	\$3,003,506	\$4,100,453
Arch/Struct Adj:	\$6,200,580	\$7,440,696	\$7,440,696
Mechanical:	\$2,574,433	\$3,003,506	\$2,979,557
Mech Adj:	\$2,014,500	\$2,417,400	\$2,417,400
	\$17,374,947	\$20,569,507	\$20,631,128

Actual Cost (Dec 1999 Dollars) \$16,312,543
 Actual Cost (Escalated 2005 Dollars) \$16,702,738

Project Name: North Creek

Firm Capacity (mgd): 36
 TDH (ft): 160
 Ground Surface Elevation (ft): 131
 Influent Pipe Invert (ft): 108
 Pump Power (HP) 1500
 Excavation Depth (ft): 34

	Current Formula	Escalated Formula	New Formula
Electrical & I/C:	\$2,564,000	\$2,995,000	\$2,006,528
Site/Civil:	\$805,000	\$964,000	\$1,433,993
Arch/Struct:	\$2,806,013	\$3,273,681	\$4,646,442
Arch/Struct Adj:	\$984,000	\$1,180,800	\$1,180,800
Mechanical:	\$2,806,013	\$3,273,681	\$3,344,528
Mech Adj:	\$600,000	\$720,000	\$720,000
	\$10,565,025	\$12,407,163	\$13,332,291

Actual Cost (Dec 1999 Dollars) \$9,848,000
 Actual Cost (Escalated 2005 Dollars) \$11,576,954